

## Somatosensory System

- Tactile
- Limb position (proprioception)
- Pain
- Temperature

Body  $\Rightarrow$  Spinal Cord  $\Rightarrow$  Thalamus  $\Rightarrow$  Cerebral Cortex

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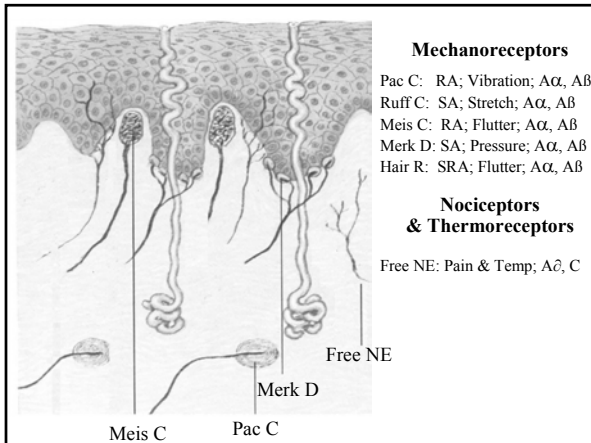
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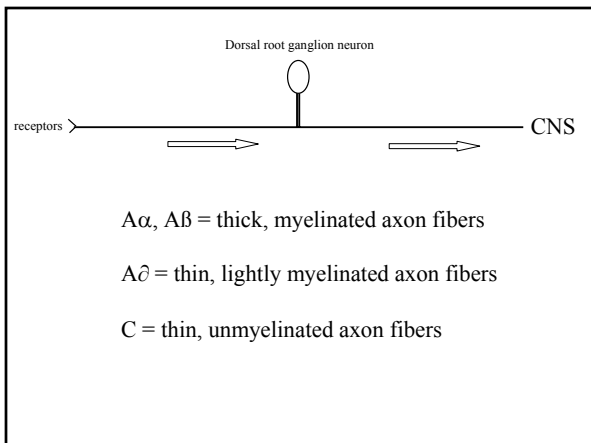
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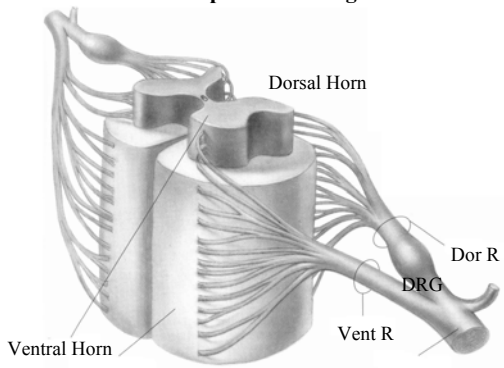
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### Spinal Cord Segment



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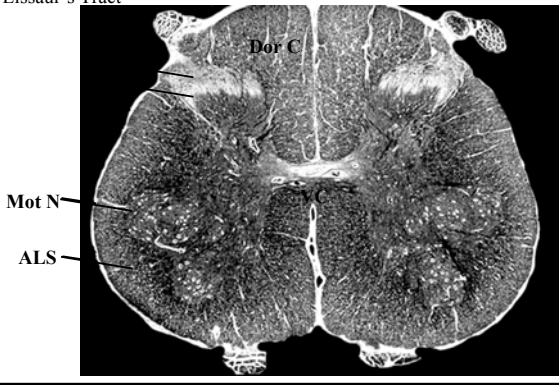
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### Spinal Segment (Sacral Cord)

Lissaur's Tract



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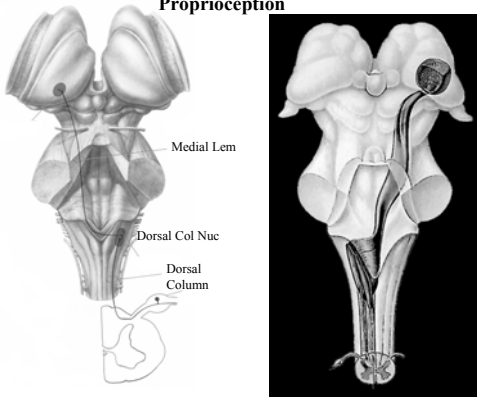
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### Dorsal Column-Medial Lemniscal Pathway: Touch and Proprioception



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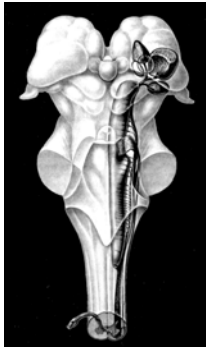
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**Anterolateral System: Pain and Temperature**



- Spinal Thalamic
  - VPL
  - intralaminar nuclei
- Spinal Mesencephalic (Spinal tectal)
  - tectum
  - periaquiductal grey
- Spinal Reticular
  - pons
  - medulla

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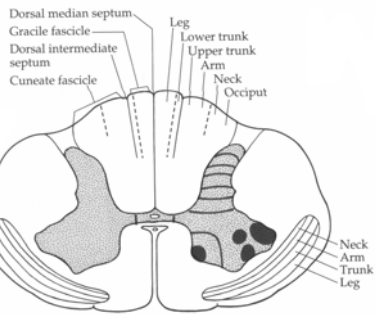
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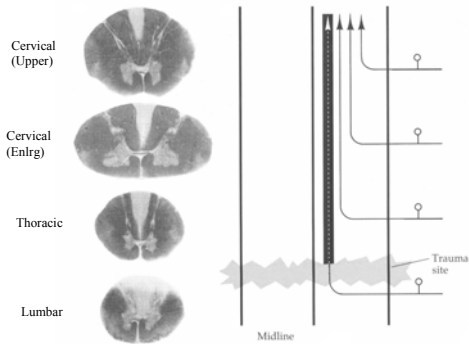
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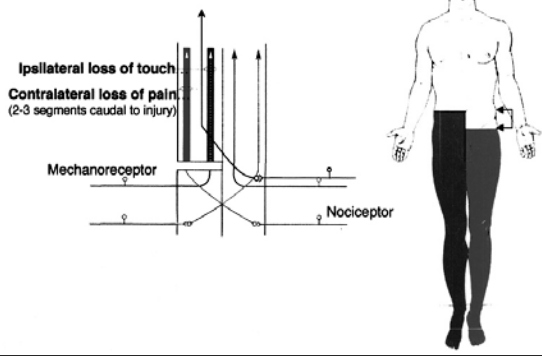
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# Spinal Hemisection



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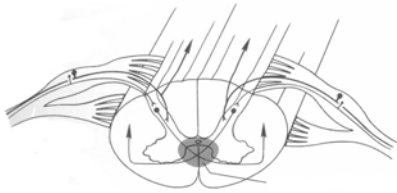
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# Syringomyelia



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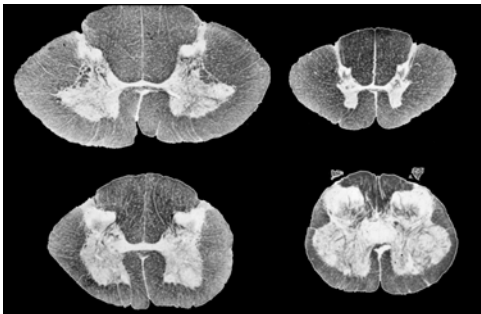
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# X 5



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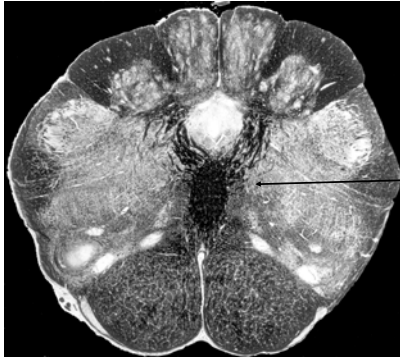
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X 15



Medial  
Lemniscus:  
"Headless  
Man  
Standing"

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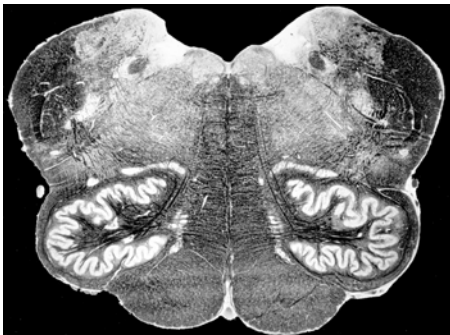
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X 20



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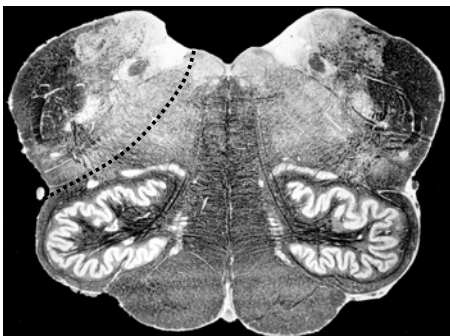
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X 20



PICA

Vertebral

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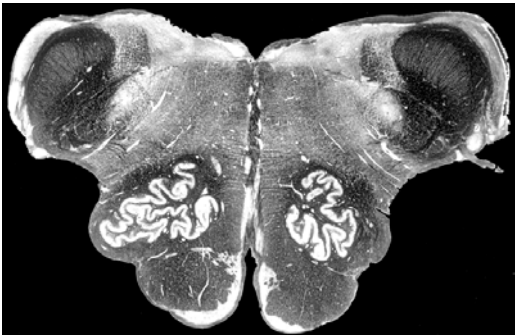
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X 25



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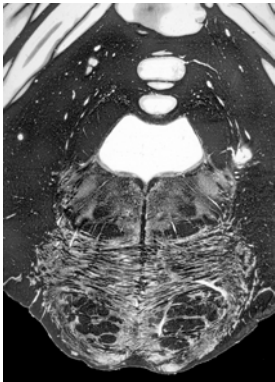
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X 35



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X 40



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X 45



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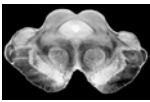
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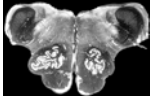
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### Pain Suppression



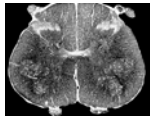
Periaquiductal grey

↓ glutamate



Raphe nucleus

↓ serotonin



Dorsal horn

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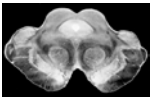
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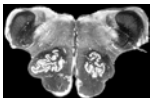
### Pain Suppression



Periaquiductal grey

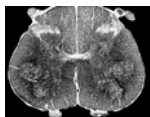
enkephalin containing neurons and receptors

↓ glutamate



Raphe nucleus

↓ serotonin



Dorsal horn

enkephalin containing interneurons inhibit ascending pain information

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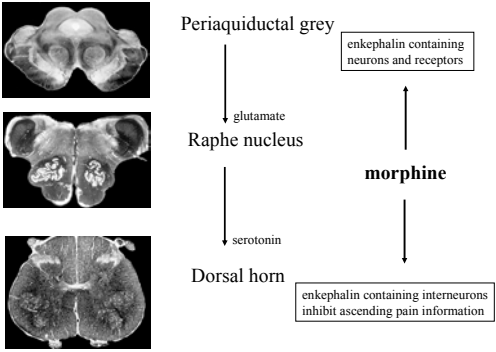
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### Pain Suppression



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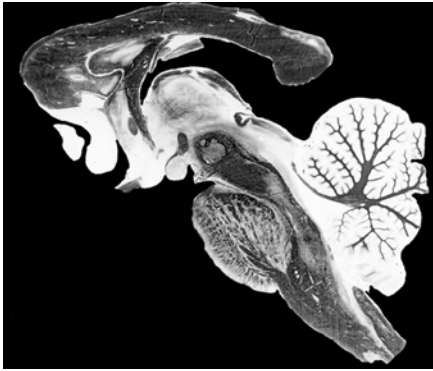
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X 100



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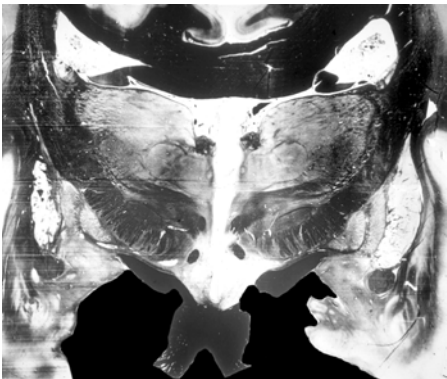
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X 55



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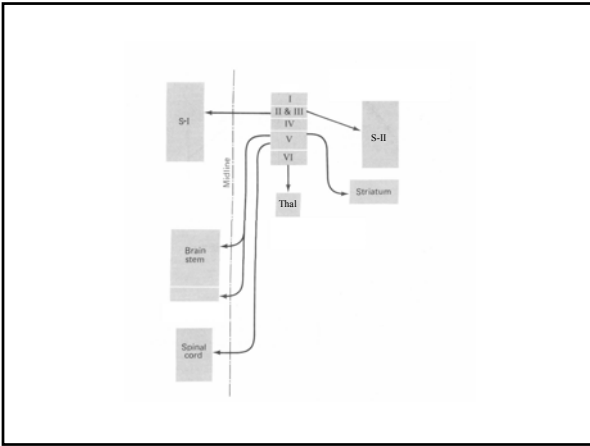
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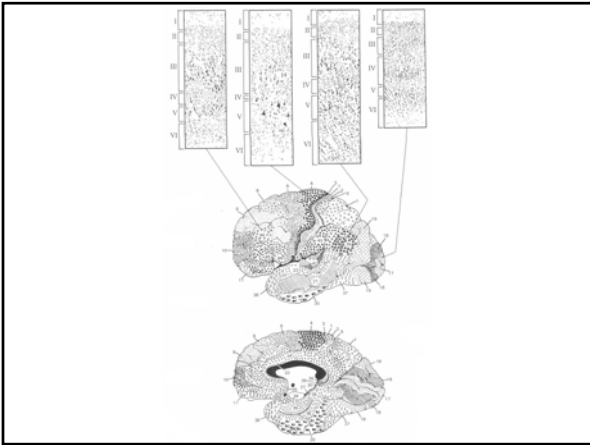
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